

```

1 import sys; print('Python %s on %s' % (sys.version, sys.platform))
2 /opt/anaconda3/envs/simons_do_mpc/bin/python -X pycache_prefix=/Users/
  simonhellmann/Library/Caches/JetBrains/PyCharm2024.1/cpython-cache /
  Applications/PyCharm.app/Contents/plugins/python/helpers/pydev/pydevd.
  py --multiprocess --qt-support=auto --client 127.0.0.1 --port 60956 --
  file /Users/simonhellmann/Documents/GIT/ad_meal_prep_control/
  ad_meal_prep_control/scenarios/scenario_2c.py
3 Connected to pydev debugger (build 241.17890.14)
4 pydev debugger: warning: trying to add breakpoint to file that does
  not exist: /Users/simonhellmann/Documents/GIT/ad_meal_prep_control/
  ad_meal_prep_control/plot_generation/test_distribution_plot.ipynb (
  will have no effect)
5 pygame 2.6.1 (SDL 2.28.4, Python 3.11.10)
6 Hello from the pygame community. https://www.pygame.org/contribute.
  html
7  0%|          | 0/1440 [00:00<?, ?it/s]
8 *****
9 This program contains Ipopt, a library for large-scale nonlinear
  optimization.
10 Ipopt is released as open source code under the Eclipse Public
  License (EPL).
11     For more information visit https://github.com/coin-or/Ipopt
12 *****
13
14 This is Ipopt version 3.14.11, running with linear solver ma27.
15
16 Number of nonzeros in equality constraint Jacobian...:   98820
17 Number of nonzeros in inequality constraint Jacobian.:    1200
18 Number of nonzeros in Lagrangian Hessian.....:   34000
19
20 Total number of variables.....:   17360
21         variables with only lower bounds:    1584
22         variables with lower and upper bounds:   1200
23         variables with only upper bounds:        0
24 Total number of equality constraints.....:   16020
25 Total number of inequality constraints.....:    400
26         inequality constraints with only lower bounds:    0
27         inequality constraints with lower and upper bounds: 0
28         inequality constraints with only upper bounds:   400
29
30 iter      objective      inf_pr   inf_du lg(mu)  ||d||  lg(rg) alpha_du
  alpha_pr  ls
31    0  5.0099802e+02  7.09e+00  1.00e+02  -1.0  0.00e+00   -  0.00e+00  0.
  00e+00  0
32    1  7.7260680e+03  3.58e+00  7.55e+02  -1.0  6.53e+00  -2.0  4.13e-01  5.
  00e-01h  1
33    2  1.2555000e+03  1.99e+00  1.39e+03  -1.0  7.37e+00  -2.5  3.62e-01  4.
  46e-01f  1
34    3  5.4737849e+02  9.32e-01  2.70e+03  -1.0  1.17e+01  -3.0  9.66e-01  5.
  62e-01h  1
35    4  5.3113160e+02  7.65e-01  2.34e+03  -1.0  1.04e+01  -3.4  1.00e+00  1.

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35 79e-01h 1
36 5 4.9561820e+02 3.69e-01 4.20e+03 -1.0 2.08e+01 -3.9 1.00e+00 4.
94e-01h 1
37 6 4.7700800e+02 5.73e-01 7.48e+03 -1.0 3.38e+01 -4.4 8.12e-01 6.
40e-01h 1
38 7 4.7687521e+02 6.84e-01 7.09e+03 -1.0 3.30e+01 -4.9 6.90e-01 4.
12e-01h 1
39 8 4.7924546e+02 6.35e-01 6.16e+03 -1.0 2.20e+01 -5.3 1.00e+00 5.
27e-01h 1
40 9 4.8452062e+02 2.61e-02 1.85e+03 -1.0 2.75e+00 -5.8 1.00e+00 1.
00e+00h 1
41 pydev debugger: warning: trying to add breakpoint to file that does
not exist: /Users/simonhellmann/Documents/GIT/ad_meal_prep_control/
ad_meal_prep_control/plot_generation/test_distribution_plot.ipynb (
will have no effect)
42 iter objective inf_pr inf_du lg(mu) ||d|| lg(rg) alpha_du
alpha_pr ls
43 10 4.8459370e+02 9.66e-03 5.14e+01 -1.0 1.52e+00 -6.3 1.00e+00 1.
00e+00h 1
44 11 4.8458899e+02 2.21e-05 2.30e-01 -1.0 7.86e-02 -6.8 1.00e+00 1.
00e+00h 1
45 12 3.4007516e+02 6.98e-03 6.23e+02 -1.7 1.77e+00 -7.2 4.91e-01 3.
84e-01f 1
46 13 1.4942344e+02 1.19e-01 3.47e+03 -1.7 3.21e+00 -7.7 1.00e+00 1.
00e+00f 1
47 14 1.3617865e+02 4.49e-01 2.52e+02 -1.7 8.53e+00 -8.2 1.00e+00 1.
00e+00h 1
48 pydev debugger: warning: trying to add breakpoint to file that does
not exist: /Users/simonhellmann/Documents/GIT/ad_meal_prep_control/
ad_meal_prep_control/plot_generation/test_distribution_plot.ipynb (
will have no effect)
49 15 1.3689675e+02 6.40e-03 4.93e+00 -1.7 1.41e+00 -8.7 1.00e+00 1.
00e+00h 1
50 16 1.3691108e+02 1.72e-05 1.06e-02 -1.7 6.62e-02 -9.2 1.00e+00 1.
00e+00h 1
51 17 5.7472945e+01 6.83e-01 1.77e+03 -3.8 1.59e+01 -9.6 5.22e-01 8.
21e-01f 1
52 18 4.1657089e+01 6.75e-01 1.07e+03 -3.8 3.45e+01 -10.1 3.07e-01 4.
16e-01h 1
53 19 3.0444401e+01 4.02e-01 5.87e+02 -3.8 8.64e+00 -10.6 8.58e-01 4.
49e-01h 1
54 iter objective inf_pr inf_du lg(mu) ||d|| lg(rg) alpha_du
alpha_pr ls
55 20 1.0420900e+01 2.13e-01 6.08e+02 -3.8 8.57e+00 -11.1 5.08e-01 1.
00e+00h 1
56 21 9.1416608e+00 6.36e-02 5.45e+01 -3.8 5.07e+00 -11.5 1.93e-01 1.
00e+00h 1
57 22 8.4327433e+00 1.41e-02 2.03e+01 -3.8 1.52e+00 -12.0 4.18e-01 1.
00e+00h 1
58 23 7.8622608e+00 2.17e-02 7.40e+00 -3.8 8.62e-01 -12.5 3.40e-01 1.
00e+00h 1
59 24 7.5171649e+00 1.30e-02 3.45e+00 -3.8 8.17e-01 -13.0 6.40e-01 1.
00e+00h 1

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60  25  7.3897630e+00 5.25e-03 1.34e+00 -3.8 4.00e-01 -13.5 1.00e+00 1
    .00e+00h 1
61  26  7.3785238e+00 5.42e-05 1.60e-02 -3.8 4.22e-02 -13.9 1.00e+00 1
    .00e+00h 1
62  27  7.3786299e+00 1.03e-08 1.82e-06 -3.8 7.56e-04 -14.4 1.00e+00 1
    .00e+00h 1
63  28  5.5993774e+00 2.09e-02 5.90e+00 -5.7 2.51e+00 -14.9 4.32e-01 5
    .52e-01f 1
64  29  5.1664989e+00 1.55e-02 4.51e+00 -5.7 2.07e+00 -15.4 4.23e-01 3
    .05e-01h 1
65 iter      objective      inf_pr    inf_du lg(mu)  ||d|| lg(rg) alpha_du
    alpha_pr ls
66  30  4.7203659e+00 8.78e-03 2.71e+00 -5.7 1.66e+00 -15.8 4.34e-01 4
    .90e-01h 1
67  31  4.6918657e+00 8.32e-03 2.59e+00 -5.7 8.81e+00 -16.3 1.35e-01 5
    .31e-02h 1
68  32  4.6106787e+00 7.01e-03 2.36e+00 -5.7 4.10e+00 -16.8 5.02e-01 1
    .61e-01f 1
69  33  4.2602413e+00 1.56e-02 2.57e+00 -5.7 1.00e+00 -17.3 3.46e-01 8
    .04e-01h 1
70  34  4.2387227e+00 1.26e-02 2.05e+00 -5.7 4.87e+00 -15.9 3.95e-01 2
    .18e-01h 1
71  35  4.2092364e+00 1.05e-02 1.35e+00 -5.7 2.74e+00 -16.4 5.86e-01 3
    .78e-01h 1
72  36  4.1597196e+00 2.41e-02 7.11e-01 -5.7 1.66e+00 -16.9 1.00e+00 1
    .00e+00h 1
73  37  4.1593033e+00 4.99e-03 5.32e-02 -5.7 8.54e-01 -17.4 1.00e+00 1
    .00e+00h 1
74  38  4.1593199e+00 1.02e-03 9.92e-03 -5.7 3.58e-01 -17.8 1.00e+00 1
    .00e+00h 1
75  39  4.1593242e+00 1.19e-05 1.29e-04 -5.7 3.77e-02 -18.3 1.00e+00 1
    .00e+00h 1
76 iter      objective      inf_pr    inf_du lg(mu)  ||d|| lg(rg) alpha_du
    alpha_pr ls
77  40  4.1593243e+00 4.74e-09 3.54e-08 -5.7 6.46e-04 -18.8 1.00e+00 1
    .00e+00h 1
78  41  4.1249511e+00 9.70e-03 1.91e-01 -8.6 1.43e+00 -19.3 4.47e-01 7
    .92e-01f 1
79  42  4.1204783e+00 5.68e-03 1.01e-01 -8.6 9.42e-01 -19.8 7.08e-01 4
    .78e-01h 1
80  43  4.1166363e+00 1.60e-03 2.31e-02 -8.6 4.04e-01 -20.0 9.30e-01 7
    .83e-01h 1
81  44  4.1156094e+00 2.60e-04 2.33e-03 -8.6 1.32e-01 -20.0 9.82e-01 9
    .58e-01h 1
82  45  4.1155640e+00 3.19e-07 1.74e-06 -8.6 7.32e-03 -20.0 1.00e+00 1
    .00e+00h 1
83  46  4.1155640e+00 3.46e-09 4.80e-10 -8.6 1.82e-05 -20.0 1.00e+00 1
    .00e+00h 1
84
85 Number of Iterations.....: 46
86
87                                     (scaled)                                     (unscaled
    )

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88 Objective.....: 2.0577819870659139e-01 4.
   1155639741318275e+00
89 Dual infeasibility.....: 4.7952087724530907e-10 9.
   5904175449061805e-09
90 Constraint violation....: 1.1057821325266559e-12 3.
   4559244355136798e-09
91 Variable bound violation: 9.9749409644135628e-09 9.
   9749409644135628e-09
92 Complementarity.....: 2.5059039146903445e-09 5.
   0118078293806888e-08
93 Overall NLP error.....: 2.5059039146903445e-09 5.
   0118078293806888e-08
94
95
96 Number of objective function evaluations = 47
97 Number of objective gradient evaluations = 47
98 Number of equality constraint evaluations = 47
99 Number of inequality constraint evaluations = 47
100 Number of equality constraint Jacobian evaluations = 47
101 Number of inequality constraint Jacobian evaluations = 47
102 Number of Lagrangian Hessian evaluations = 46
103 Total seconds in IPOPT = 2.489
104
105 EXIT: Optimal Solution Found.
106      S :   t_proc      (avg)   t_wall      (avg)   n_eval
107      nlp_f | 312.00us ( 6.64us) 302.50us ( 6.44us)    47
108      nlp_g | 27.33ms (581.49us) 35.28ms (750.57us)    47
109  nlp_grad_f | 1.62ms ( 33.85us) 1.63ms ( 33.96us)    48
110  nlp_hess_l | 83.60ms ( 1.82ms) 89.09ms ( 1.94ms)    46
111  nlp_jac_g | 72.73ms ( 1.52ms) 73.89ms ( 1.54ms)    48
112      total | 2.27 s ( 2.27 s) 2.50 s ( 2.50 s)    1
113

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